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Rehabilitation of grossly decayed primary anterior teeth using different types of Post and core- A case series

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ABSTRACT

Early childhood caries is unexceptional childhood disease which affects the primarily the maxillary anterior teeth. It leads to deleterious effects like difficulty in speech, mastication, development of parafunctional habits and aesthetic problems. A restorative technique that provide durability, efficiency and easy to perform could help the dentist to manage children with early childhood caries effectively. There are various intraradicular posts like metal post, fibre posts, custom made orthodontics wire post, biological post to restore lost tooth structure and to support a restoration.

Keywords: fibre post, post and core, primary anteriors

INTRODUCTION

Early childhood caries is an unexceptional childhood disease. It has lamentable effects on children as well as on their parents. It affects the children at very early developmental stage. It is very common to see children with mutilated maxillary deciduous anteriors due to early childhood caries[1,2].

Restoration of anterior teeth to improve the form and function is a unique challenge for the pediatric dentist due to the aesthetic requirements[3]. A restorative technique that provide durability, efficiency and easy to perform could help the dentist to manage children with early childhood caries effectively[4]. There are various intraradicular posts like metal post, fibre post, custom made orthodontics wire post, biological post to restore lost tooth structure and to support a restoration. The case series of these patients describes the challenging task for the Pedodontics of treating severely mutilated maxillary anteriors with prefabricated glass fibre post, prefabricated metal post and custom made modified omega wire loop post as intracanal anchorage for better retention and adaptation for future placement of the coronal restoration.

CASE REPORT – 1

A 3 years old male patient reported to the department of Pedodontics and Preventive dentistry, Rohtak, Haryana with chief complaint of his parents about the unaesthetic appearance due to grossly carious front upper teeth. Intraoral examination revealed grossly carious 51,52,61,62. After clinical and radiographical examination, treatment planning was done to restore teeth using intracanal restoration after Pulpectomy.

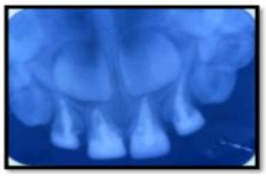
Pulpectomy was done with respect to 51, 52, 61, 62 and post space of 4mm length was made with the help of tapered fissured bur. The post-space was air dried & a 1 mm base of GIC placed to isolate the obturated material from the rest of post space. The post space acid etched with 37% phosphoric acid, rinsed, dried. Bonding agent applied and cured. Prefabricated Metal Post is then cemented into the canal using flowable composite. The coronary portion was restored with strip crowns. The No. 1 short post was chosen because the length of the post (5 mm) is long enough to build up the coronal length. The bulk of composite resin around it was enough to ensure that it is not showing the metal shadow and also there is less possibility for interference with the occlusion. Follow up was done after 3,6 and 9 months and the restorations were intact.

CASE 1 - PREFABRICATED METAL POST
3 YEAR OLD CHILD PATIENT

PREOPERATIVE

INTRAOPERATIVE

POSTOPERATIVE



POST OPERATIVE IOPA

CASE REPORT – 2

A three and half year old male patient reported with chief complaint of severe and spontaneous pain in the 51. Also, parents were concerned about mutilated look of anterior teeth. Intraoral examination revealed grossly carious 51,52,61,62 and sinus with respect to 51. Clinical and radio graphical examination was done to restore teeth using intraradicular restoration in second appointment followed by Pulpectomy with respect to 51, 51, 61, 62.

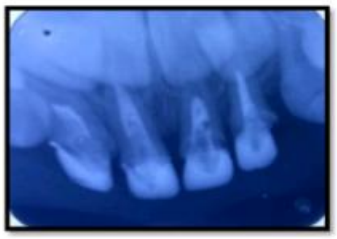
Pulpectomy was performed with respect to 51, 52, 61, 62. After 2 weeks, the sinus with respect to 51 was healed clinically. The intracanal restoration with the help of prefabricated glass fibre post was planned. A Post space of 4mm length was made with the help of tapered fissured bur. The post-space was air dried & a 1 mm base of GIC placed to isolate the obturated material from the rest of post space. The post space acid etched with 37% phosphoric acid, rinsed, dried. Bonding agent applied and cured. Prefabricated glass fibre post is then cemented into the canal using flowable composite. The post was cut with a diamond bur under water cooling system. Post is inserted into the canal space with cotton plier to avoid the contamination with the gloves. The coronary portion was restored with strip crowns.

CASE 2 - PREFABRICATED GLASS FIBRE POST
3 & ½ YEAR OLD CHILD PATIENT

PREOPERATIVE

INTRAOPERATIVE

POSTOPERATIVE

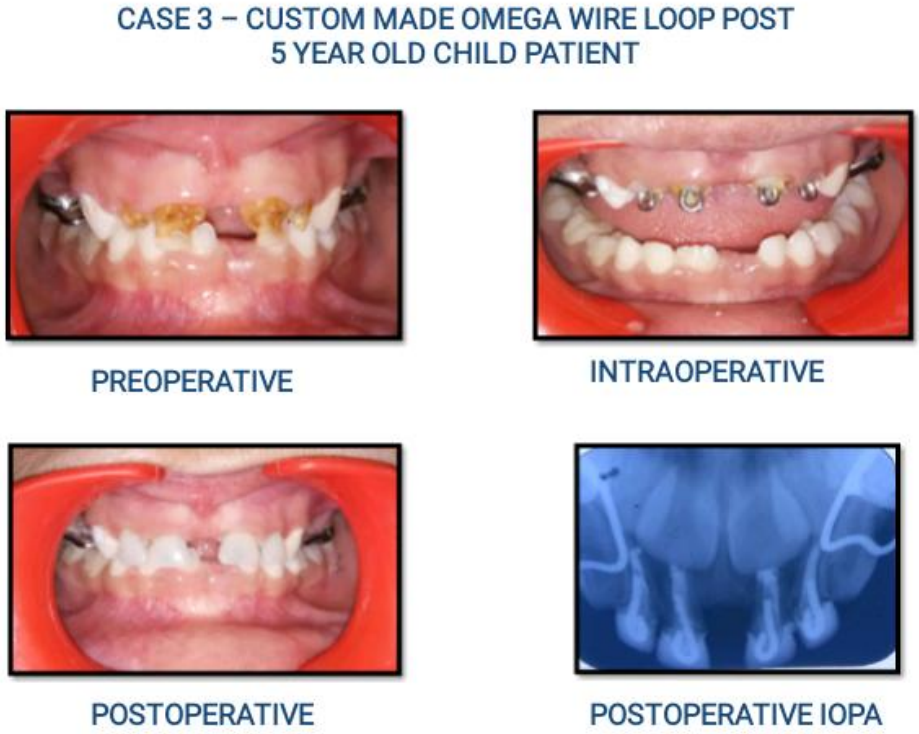


POST OPERATIVE IOPA

CASE REPORT – 3

A five year old male patient reported with grossly carious 51,52,61,62 and root stumps with respect to 54 and 64. After clinical and radiographical examination, treatment planning was done to restore 51, 52, 61, 62 using intraradicular restoration and extraction of 54 and 64 followed by band and loop space maintainer.

Pulpectomy was done with respect to 51, 52, 61, 62 and extraction was done with respect to 54 and 64. During second appointment, prefabricated bands were adapted with respect to 55 and 65 and alginate impression was taken and bands were transfer from mouth to impression and cast was made. The band and loop space maintainer was fabricated and cemented. Custom made modified omega wire loop post was made using 0.7mm stainless steel wire manipulated by using no. 130 orthodontic plier into omega shape to hold restorative material for core build up. The rest of the procedure is as same as previous cases.



DISCUSSION

Reconstruction of severely decayed primary maxillary anterior teeth both esthetically and functionally is a challenging task for the pediatric dentist due to the reasons such as low surface area i.e. less tooth structure due to caries or trauma, weak adhesion of bonding to the primary teeth, uncooperative nature of child patient to whom these treatments are required and limited availability of materials and techniques[5,6].

The main aim is to preserve the tooth structure and restore it both esthetically and functionally. Many studies suggested the use of intracanal restorations such as post for better results like retention for the coronal restoration. There are many types of post which can be use in the primary dentition.

Literature has mentioned vast number of methods for the reconstruction of severely mutilated primary anteriors, such as direct and indirect techniques, use of metal posts, fibre post, resin composite post and core, reinforced composite and glass fibre post, custom made orthodontic wire loop posts and biological posts[6]. Glass fibre post, carbon fibre posts, Kevlar posts and polyethylene fibre post are some forms of fibre- reinforced composite post with acceptable aesthetic[7].

In the present case series, three types of post are used such as prefabricated metal post, prefabricated glass fibre post and custom made modified omega wire loop post. Each post has their own advantages and disadvantages. Prefabricated metal post provides a fast, easy to perform, inexpensive and less technique sensitive conventional approach as compared to the glass fibre post. The disadvantage of using metal post is the discoloration of the coronal restoration leading to unaesthetic appearance due to the color of the post[7]. Prefabricated glass fibre post provides acceptable esthetic though it is technique

sensitive. Custom made modified omega wire loop post is a simpler and effective method introduced by Mortada and King in 2004. The advantage of this technique is that wire does not cause internal stress so there are less chances of root fracture and this technique requires minimal chair side time[8].

Mehra M et al[9] compare the polyethylene fibre, glass post and flowable composite as post for retention and marginal adaptation. The polyethylene, glass fibre and composite posts exhibit 100% retention and marginal adaptation after 3 and 6 months. This value decreased to 86.66%, 93.33% and 73.33% respectively during 9 month. Eshghi A et al[10] compare the clinical success rates of reverse metal, fibre and composite post. According to the evaluation criteria 98% of composite, 84% of fibre and 90% reversed post restorations were acceptable at the 12 month follow up.

Arora R et al[8] used modified omega loop as a post and suggested that modified omega loop with serrations demonstrated good retention, good aesthetics and masticatory function to the child. However it is a long time success and its durability in children having parafunctional habits like bruxism, deep bite etc. is a matter of further research. There are several methods in literature for the coronal restoration after placement of post such as pedo jacket crowns, fuks crowns, new millennium crowns, preveneered crowns, cheng crowns and composite resin strip crowns[11]. In this case series, composite resin strips crowns are used because of their better esthetic as they resemble more closely the natural appearance of the teeth.

CONFLICT OF INTEREST

The author declares no conflict of interests.

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